



Case 7.5 Technical University of Denmark (DTU) - Development of Faculty Teaching Competence

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Development of Faculty Teaching Competence at the Technical University of Denmark

To support new faculty members in their role as engineering educators, the Technical University of Denmark (DTU) offers since 2004 a training programme called *Education in University Teaching at DTU* (UDTU). It is part of a larger introduction scheme which also includes collegial mentoring and supervision of teaching during the introduction period, and development of a teaching portfolio. Successful completion is required for appointment as Associate Professor, and for taking on full course responsibility.

Each year about 60 participants start UDTU, which consists of four modules with a total estimated workload of 250 hours. The focus is first on classroom management, followed by topics relevant for designing, implementing and evaluating courses, and for understanding teaching and assessment from a student learning perspective. The final module is a project in which participants develop their own teaching, using action research methods to analyse both the student learning outcomes and the student course experiences. During the project, the participants submit two reports and continually get feedback on their work.



The main objective of UDTU is to develop the capacity to design courses as effective environments for student learning. It aims to develop participants' critical and creative sense for their own teaching practice (Andersson & Onarheim, 2015). The learning paradigm is constructivism, with a theoretical framework based on constructive alignment (Biggs and Tang, 2011) and approaches to learning (Marton and Säljö, 1984). The theory is closely related to teaching practices at DTU, emphasising participants' application in their own teaching.

Following the success of UDTU, departments have requested equivalent activities for experienced teachers. Consequently, *University Pedagogy for Experienced Teachers* (UP) has been held three times by 2018 (Andersson & Hansen, 2015). The estimated workload of UP is 140 hours over one semester. The setup is similar to UDTU but customized for experienced faculty, based on Kolb's model of experiential learning (Kolb, 19xx). The starting point is to explore and analyse the participants' own teaching practices in the student perspective, i.e. based on interviews with students, followed by theory on teaching and learning, course planning, orchestration of learning, assessment and research-based teaching. Each participant presents an implementation plan for revising a course, with feedback and coaching from peers and course leaders, and finally writes a teaching statement.

The organizational structure behind the programme is designed to ensure joint ownership. The activities are coordinated by the teaching development unit, LearningLab DTU, and carried out in close cooperation with the departments. Both UDTU and UP are taught by teams of two course leaders, one faculty member from a DTU department and one LearningLab DTU staff. In addition, previous participants visit UDTU to share how they keep developing their teaching practice inspired by the ideas. In UP the participants also meet leading Danish experts on teaching and learning. There are indications that the programme is working as intended. Most importantly, the departments find it useful and stay involved and supportive. Several participants have also submitted papers to engineering education conferences and journals, based on their UDTU or UP projects.

Contacts

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References

- Andersson P., & Hansen C. T. (2014) Experiential learning as a method to enhance experiential teaching. *Proceedings of the 42nd Annual SEFI conference*, Birmingham, UK.
- Andersson, P., & Onarheim, B. (2015) Facilitating creativity as a core competence in Engineering Education. *Proceedings of the 43rd Annual SEFI conference*, Orleans, France.
- Biggs, J., & Tang, C. (2011). *Teaching for quality learning at university*. Maidenhead: McGraw-Hill.
- Kolb, D. A. (2014). *Experiential learning: Experience as the source of learning and development*. Upper Saddle River: Pearson Education Inc.
- Marton, F., & Säljö, R. (1984). Approaches to learning. In F. Marton, D. Hounsel, & N. Entwistle (Eds), *The experience of learning* (pp. 36-55). Edinburgh: Scottish Academic Press.